# AMATEUR-RADIO

**INCORPORATING THE N.S.W. DIVISIONAL BULLETIN**

Vol. 13. AUGUST, 1945. No. 8

## - RADIOLOCATION -

For security reasons it has hitherto been impossible to publish any details regarding radiolocation. Some details of the basic principles have now been made public and the following information has been taken from an article appearing in "Wireless World."

When England entered the war she was already partially equipped with a new technical weapon in the form of a novel application of radio waves to the detection of objects such as aircraft or ships. This technique first known as RDF; later as radio-location and has finally become largely known as Radar.

Radiolocation may be described as the art of using radio waves for the detection and location of an object, fixed or moving, by the aid of the difference of its electrical properties from those of the medium adjacent to or surrounding it. No co-operation is required from the object being detected; this being the big difference from radio direction finding. All that is required of the object under examination is that it should reflect or scatter some of the radiation which reaches it from a transmitter forming part of the whole Radar installation. The detected object is thus merely a source of secondary radiation which results from its being illuminated, as it were, by the incident radiation from the primary sending station.

With this definition of the subject, we may now proceed to an explanation of the fundamental principles forming the basis of this new application of radio waves.

REFLECTION AND REFRACTION OF ELECTRIC WAVES... At the end of last century, Hertz demonstrated the salient properties of the newly produced electromagnetic waves and showed that these were similar to those of light-waves when allowance is made for the difference in wave-length. He showed that the long electric waves could be reflected from metallic sheets concentrated into beams by suitably shaped reflectors, and refracted by passage through prisms of insulating material. These phenomena are due to the fact that when electric waves, of whatever length; impinge on the boundary separating two media of different electrical properties, the path of transmission of the waves is altered; some

of the wave energy passes across the boundary, but in doing so its path is bent or refracted; another portion of the wave energy is turned back from the boundary and forms the reflected portion of the waves on the same side as the incident waves (see Fig. 1). The relative magnitudes of the reflected and refracted waves depend upon the electrical properties of the media on the two sides of the boundary, the angle of incidence (o in Fig 1) and the frequency or wavelength of the waves. If these quantities are known the reflecting power of the surface of separation of the two media can be calculated, and in many cases this calculation is made easier as the first medium is air which has low electrical conductivity and a dielectric constant of approximately unity.

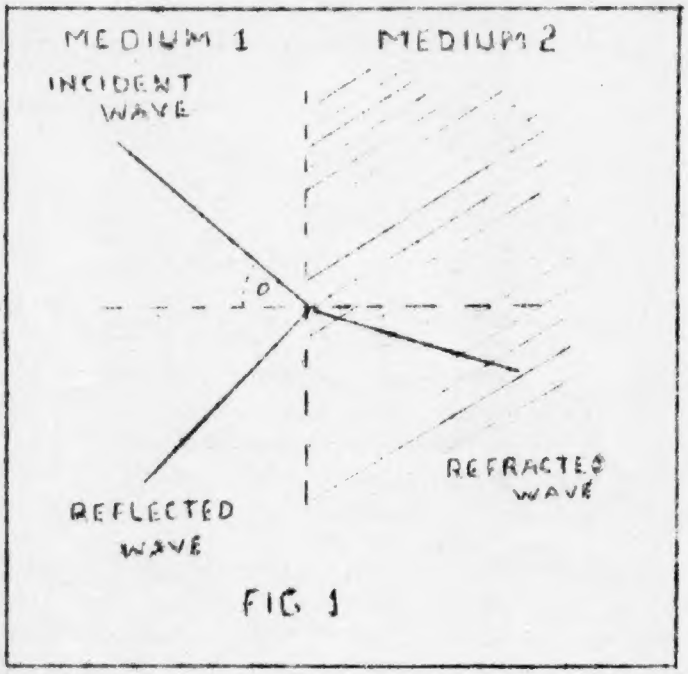

FIG 1

If the second medium is a sheet of copper with high conductivity, nearly all the incident energy in the arriving waves will be reflected as the result of re-radiation. The same result will be obtained if the second medium consists of fresh water; for, although in this case the conductivity is low, its permittivity is high and thus strong dielectric currents will be set up, particularly at high radio frequencies. In the case of soil or earth, which has both a moderate conductivity and an intermediate value of permittivity, a portion only of the incident wave energy will be reflected, the remaining energy passing into the medium to form the refracted waves.

It may thus be seen that reflection of radio waves is caused at a boundary between two media, and when waves in air strike a surface, which may be either a metallic conductor or an insulating medium, the waves are reflected in some degree by the surface. If the surface is relatively smooth, the reflection is of the same type as met with in light waves; and in such cases if the waves impinge normally on the surface, they will be reflected back along the original direction towards the source of the incident waves. A rougher surface causes "scattering" and in consequence only a portion of the reflected energy is returned along the path of the incident waves.

MEASUREMENTS WITH LIGHT WAVES...Fig. 2 illustrates the manner in which a searchlight enables a target--aircraft or cloud--to be seen by an observer situated

at R, who can then determine its bearing and angle of elevation; This is a well known art but the observer cannot determine the distance of the target by this means. In order to do this, it is necessary to interrupt or modulate the beam of light in such a way that the time of transit of the waves between the source and the target and then back to the receiver may be determined.

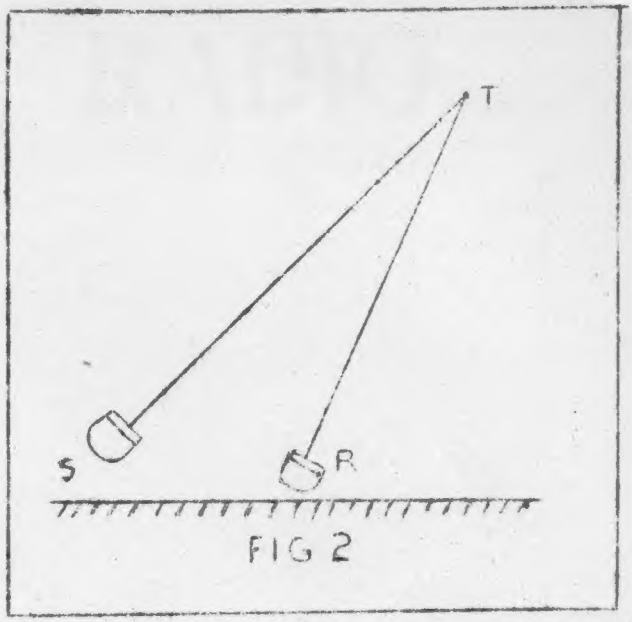

FIG 2

This was done as far back as 1849 in experiments carried out to determine the speed at which light waves travel. A mechanical method was used for measuring the time of transit of an interrupted beam of light over a return path about 3 or 4 miles long. At that time the distance was accurately measured and so the velocity of the waves determined. Nowadays, as the velocity is known, then the length of an unknown path with a reflector at the end of it can be calculated.

A possible arrangement of this method of determining the distance by the aid of light waves is illustrated in principle in Fig. 3. As before, light from a source S is transmitted to a target at T whence some of it is reflected back to a receiver at R. In front of both S and R rotates a disc W, with an even number of radial apertures in it, so that the beam of light is alternately interrupted and allowed to pass. With the disc stationary the outgoing and incoming beams pass through the corresponding slots at the end of a diameter. As the disc is rotated and its speed gradually increased, some of the light which has passed through a slot A1 in front of S will be cut off, because by the time it has traversed A1 T A2 the corresponding slot A2 will have moved round through a small angle. As the rate of rotation of the disc is increased, a speed will be reached at which the returning light will be cut off by the portion of the disc between the slots. As the speed of the disc is further raised the

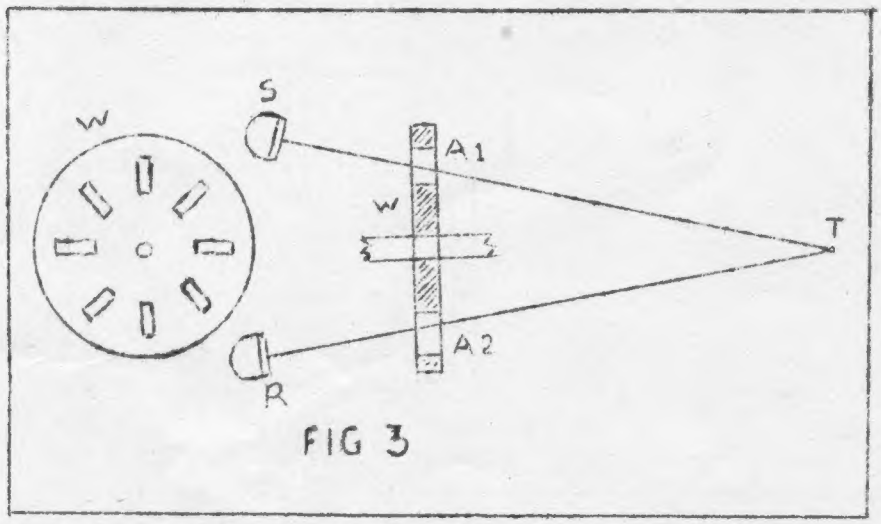

FIG 3

light will again be perceived at R, since while the light is traversing the path A1 T A2, the disc will have rotated through an angle equal to that separating adjacent slots. Hence from an observation of the speed of the disc under these conditions, and assuming the velocity of the waves, the distance A1 T can be determined. From this type of measurement and the associated observations of the angular directions of the reflector T in both the horizontal and vertical planes, the position of T in three-dimensional space becomes known. This is, in essence, the fundamental principle of radiolocation as it is practised today.

THE PRINCIPLES OF MODERN RADAR...The reader is now in a position to understand the elementary principles of radiolocation, in so far as these are analogous to the experiments with light waves described above, but making use of the longer electric waves in the radio-frequency portion of the spectrum. The transmitting section of a station emits radiation over a broad arc in the desired direction. When this radiation strikes an object having appreciable conductivity or dielectric constant, some of the energy is reflected or scattered back. If the radio waves are transmitted in short pulses, the time of transmit to the reflecting target and back can be measured by displaying the received signals on the screen of a cathode ray tube. The arrangement is shown in Fig 4, where successive pluses P1, P2, P3 and P4 have been emitted from the antenna A1, the first two pulses having already reached the target and been reflected back towards the receiving antanna A2. The pulses received at A2 are suitably amplified and rectified and then applied to the vertical deflecting plates of a cathode ray tube. If the horizontal deflecting plates are connected to a suitable time base circuit operating in synchronism with the pulse generating circuit, then for a fixed distance A1 T A2, the received pulses will appear superimposed on one another as vertical deflections from the horizontal time base. If the time base is made to start its deflection from the left hand side of the screen at the same instant as the pulse of radiation leaves the transmitting aerial, then the distance along the time base from its origin to the position of the pulse displayed on it is a measure of the

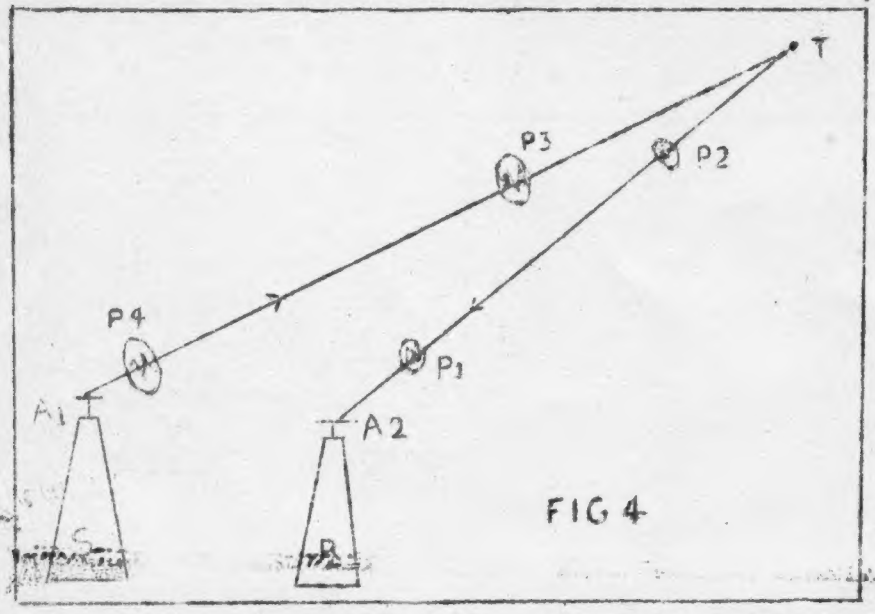

FIG 4

# Transformer Problems

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length of the path A1T A2. As we know that the velocity of radio-waves is substantially 186,000 miles per second, the scale of the time base can be graduated in miles (see fig. 5).

The amplitude of the pulse on the tube is proportional to the strength of the received signal and so increases the nearer the target is to the receiver. When other conditions remain the same, the amplitude of the echo is also a measure to some extent of the reflecting properties of the target, for example, its size, and an experienced observer may be able to guess the nature of the target from the echo pulse seen on the tube screen.

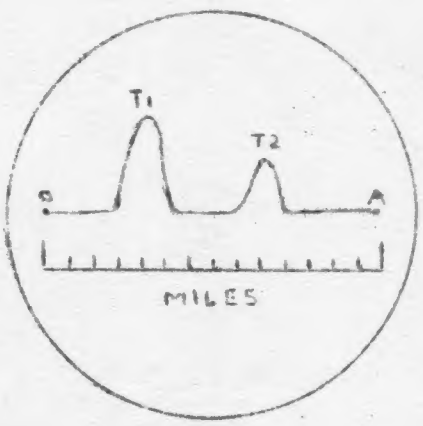


FIG 5

It is also necessary to determine the direction of arrival of the waves in both the horizontal and vertical planes. These measurements can be made by well established methods for observing the

bearing and the angle of elevation (see fig 6). The first may be determined by standard DF methods while the angle of elevation can be measured by comparing the amplitudes of the voltages induced in two similar aerials mounted one above the other at a known distance apart; the distance depending on the wavelength used and the range of angles of elevation it is desired to cover. If the target is an aircraft, then the knowledge of the range and angle of elevation enables its altitude to be calculated.

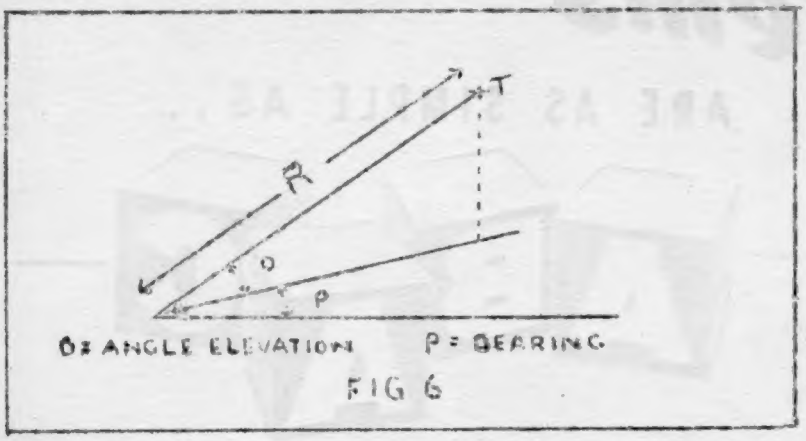

FIG 6

The above considerations all apply to the use of wavelengths of about 5 to 50 metres. If much shorter wavelengths are used it becomes possible to arrange what is, in effect, a radio searchlight, but with the addition of the facility for determining distance. When this type of radiolocation set is trained on the target to give the maximum deflection of the received pulse the bearing and elevation can be read off the horizontal and vertical planes respectively, while the range is determined as before.

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## ODE TO A RADIO TUBE

When I was young and full of hope,
  The diode tube was all the dope,
Then, came the triode and high-mu,
  The latest thing, I'm telling you.

Next came the tetrode with its screen,
  And then the pentode hit the scene.
We thought they surely were the last,
  But from then on things happened fast.

Duo-diode, Pentode-triode,
  Pentagrid converter;
Duplex-diode, detector triode,
  Pentagrid inverter;
Now tubes arrived by every train,
  'Twas at this point I showed the strain.

Now I am old, beyond my years
  I've got gray hair above my ears,
And to the world Itellmywrongs,
  Why do tubes have so many prongs?

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## AMATEUR TEST EQUIPMENT

- Charles C. Quin VK3WQ -

## PRACTICAL WORK WITH INSTRUMENTS

As pointed out at different times throughout the series, it is essential that good quality components be used in building up the various pieces of equipment if results are to be relied upon.

Assuming that a receiver is the apparatus under construction, all components are first checked with the aid of the BRIDGE. You then proceed with construction. Some people simply must check operation before the job is completed. Here is where the MULTI-VIBRATOR is a great help. With speaker or 'phones connected to the output of the receiver, the signal of the MV is applied at each successive point, back from the output plate, until the faulty stage is located. Care must be exercised that a 'stopping' condenser be placed in series with the MV output when placing it on points where DC voltage appears, which of course can be checked with your UNIVERSAL METER. The obvious reason is that the output of the MV is fairly low impedance, and would 'short' the supply voltage at that particular point. As each point is reached further from the output, increased signal from the MV should be noticed, thus showing whether that particular stage is working or not.

Coils can be checked up with the DYNATRON or TRANSITRON in conjunction with the SIGNAL TRACER. Losses are checked with the Dynatron, then coil (and condenser to be used with it) are connected to the Transitron and oscillation set up. Output of Transitron is fed into RF section of the SIGNAL TRACER. In this way the coils can be easily checked for actual frequency coverage and 'pruned' before wiring into the receiver. Any stray capacitances which may be present in the receiver can be checked with the bridge, by assembling all components and then measuring at the appropriate points, (in the receiver).

It will now be assumed that the receiver is completed and ready to undergo an actual test 'on the air'.

The first requirement is to see that the IF stage or stages are correctly aligned. Transitron is now used with its coil and condenser tuned to the IF frequency. Signal tracer is tuned to this frequency, and output of Transitron applied to the last stage, with the signal tracer probe plugged into the R. F. section of the tracer. Point of this probe is applied to the detector section of the receiver, and with the transitron output fairly high, the IFT is tuned, gradually reducing this output as resonance is reached. AVC if used on the receiver, should be shorted out or rendered inoperative, during these operations. The next stage is now aligned in the same manner. If necessary the signal tracer can be applied to the audio section of the receiver. In this case of course, the

probe is plugged into the audio section of the tracer, and point is placed preferably on the grid of the audio tube. IF stages now being aligned, the RF section presents no greater difficulties.

Signal tracer can now be tuned to the IF frequency and applied to the grid or plate of the first IF tube and this should provide a useful level to work with. It is a good plan to line up the lower frequencies first. Tuning to the high frequency end of the coil to be checked, that is, with the tuning condenser of the receiver about 3/4 out of mesh, trimmer of oscillator is set to the desired frequency, with the aid of a signal from the Transitron, and Trimmer condensers of other stages are now adjusted until maximum output is obtained through the signal tracer. Now tune to the low frequency end of the band, and, with the aid of a signal from the MV, adjust the oscillator padder. Due to the multiplicity of signals, the tuning condenser of the receiver need not be 'rocked', as the MV signal will appear to be one continuous signal and a 'peak' will easily be found. Now return to the high frequency setting and, with the Transitron signal, recheck the alignment. This should complete the alignment procedure for this particular coil, but as a final check, output of MV is fed into receiver and tuning condenser rotated throughout its range, any dead spots will now be shown up, and series or parallel trimmers added accordingly. This of course will mean that the whole procedure will have to be gone through again, for aligning the oscillator and RF section of the receiver. The higher frequency coils are now aligned in the same manner. Your receiver should now operate equal, if not better than a factory aligned job, because it is to your own individual requirements.

If you have gone to the trouble of calibrating the output of the transitron etc., you should be able to carry out measurements of stage gain, and sensitivity. But that is another story.

The foregoing is only one of the uses of the individual apparatus which obviously has uses other than that shown.

A short bibliography is given from which the foregoing articles since last September, have been compiled. This is of necessity, by no means complete, as everyone has his own particular choice of text books and other publications. Therefore it will serve as a guide only. Victorian Division members at least may be more fortunate in the respect that Ken Ridgway has been hard at work compiling an Index from the various publications in this Divisions Library, and this should be very helpful, not only for the apparatus mentioned in AMATEUR RADIO from time to time, but for anything connected with the art generally.

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## THE TECHNICAL LIBRARY

FUNDAMENTALS OF RADIO...Jordan, Nelson, Osterbrock, Pumphrey and Smoby...Edited by W. L. Everitt (New York 1942), 400 pages.....37/6.

Another of the very long list of books which the war has apparently caused to be compiled on this subject, but rather more expensive than most.

Contents are:- Mathematics of Radio, DC Circuits, AC Circuits; Electronic Principles; Rectified Power Supplies; Sound and its Electrical Transmission; Audio Amplifiers; Vacuum Tube Instruments; Electromagnetic Waves; Transmission of Signals by Radio; RF Amplifiers and Detection; AM Transmitters; AM Receivers; Frequency Modulation; Radio Wave Propagation; Radio Antennas.

The book is thorough, due probably to the editing of the capable Wm. Everitt, but considering its scope in relation to its price it would not seem to represent the same value as some of the other books on fundamentals which have been reviewed here.

The copy reviewed here was supplied by courtesy of McGills Newsagency, Elizabeth Street, Melbourne.

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# POST WAR AMATEUR RADIO IN AUSTRALIA.

- By R. H. Cunningham, VK3ML -

## INTRODUCTION:

It must be anticipated that there will be a boom in Amateur radio in Australia after the war.

2. For the purpose of estimating various requirements to meet an expanded organisation the tentative figure of 5,000 licencees has been taken.

3. It is incumbent upon the W.I.A. being the oldest and best established radio society in Australia, to plan for such an expansion - if it has the aim of truly representing the Australian Amateur, Such consideration should be given now and not when the war is over; if chaotic conditions are to be avoided.

4. The object of this paper is therefore, to review the possibilities of the future and to give thoughts to the requirements of an organisation that will meet the needs of the future.

5. It is assumed that the P.M.G. Department will undoubtedly maintain its present cordial relationship with the W.I.A. It is further assumed that this Department will look to the W.I.A. for greater assistance than ever in the administration of the Amateurs. Therefore, the problem of efficient administration will fall heavily upon the shoulders of the W.I.A. and a considerable effort will have to be made by the W.I.A. on the part of the Amateur to formulate a plan and policies for the Government of its members.

6. There lacks, at the moment, a Federal Constitution that represents the agreements or voices of all Divisions of the W.I.A. Such a constitution should represent the guiding principle of the W.I.A. as a whole and without one we cannot possibly hope to achieve sound government and organisation. This is the document that should be presented to the P.M.G. Department as the policy of all Divisions and upon which the fundamentals of the W.I.A. are based. It is therefore strongly urged that a federal constitution be drawn up now and presented to the P.M.G. Department. It is realised that there are difficulties in drawing up such a constitution at the present time in the absence of many of our members, but as the matter is so vital there should be no reason why a tentative constitution should not be formulated with effective powers for say 18 months to 2 years after the regranting of our licences, After this period this constitution may be amended as directed by Divisions.

7. As such close liaison with the P.M.G. Department will be necessary in the re-establishment of Amateur radio period, it is urged that, at least for the duration of the tentative federal constitution, the location of the Headquarters of the Federal Executive should be with the Department in Melbourne.

8. The administration of 5,000 licencees on a federal basis will call for perhaps a permanent and paid secretary acting under the direction of the Federal Executive Council.

9. One of the major tasks to be decided upon lies in the W.I.A's and P.M.G. Department's interpretation of the wording of "Amateur Operators Proficiency Certificate." It is known that the "Amateur" has always been divided into two classes -

(i) The experimenter.
(ii) The Amateur or traffic handler.

As this is a contentious point it is not proposed to deal further with the matter, but it is suggested that paragraph (ii) may be given consideration from the Defence Services point of view.

MAGAZINE:

10. It is also suggested that consideration be given to the future role of the W.I.A. Magazine "Amateur Radio." Magazines may perhaps be considered in the following classes -

(i) Technical magazine - on which an organisation's livelihood depends - T & R Bulletin Amateur Radio.

(ii) Non-technical - such as a trade journal with "personality" articles with contributed technical articles which may or may not be run with a view to financial gain - R.A.C.V. "Radiator," Australian Radio Trade Journal.

(iii) Technical magazine in competition with others - U.S.T. - Electronics - Wireless World etc.

Other factors to be considered suggest themselves, such as -

(i) W.I.A. policy towards affiliated clubs.
(ii) Relation to services.
(iii) Training and courses for students.
(iv) Relation to A.R.R.L. and B.E.R.U. etc.

But the object of this paper is W.I.A. Federal policy on the highest plane and details are left to sub-committee planning.

COURSES OF ACTION:

11. It is suggested that the following course of action should meet our immediate needs of post war planning -

(i) Appoint a federal executive council (war-time) from W.I.A. members in Melbourne who will be responsible for drawing up a federal constitution.

(ii) Appoint a main committee for post hostility planning.

(iii) This main committee to appoint suitable sub-committees to investigate individual problems.

## SLOUCH HATS AND FORAGE CAPS

It is not very often that the Editor has anything to say in these pages, but as always the time must come when he must have something to say.

At more or less the last moment before going to press he receives a telegram from 2YC which reads - "Can you manage a page. Nothing here at all this month...Jim." In the following mail he does manage to forward a page or so of notes....where he dug them up from I don't know.

Now chaps this is a very sad state of affairs. These pages have run continuously for some four years, sole for your benefit, and I believe Slouch Hats and Forage Caps, is the most widely read feature in the magazine. I say most definitely that it is not 2YC's place to have to chase sufficient notes each month to fill his allotted quota. It's up to you to see that he has the notes sent to him.

...xxxxxx..,

Well, what about that "A" Class licence...you don't like it? Well, did you write in and say so???..its the best idea you have heard of????? Well, if the others write in and you don't your "best idea" will be lost forever. Boiled down, its like this...every Ham you meet will have fierce ideas on this Post War Ham Radio but there are still the majority of you that have to write in to FHQ on the matter. So, after you send me the notes for YOUR COLUMN get on with that letter to FHQ.

VK2NO Don B. Knock once more back in civvies and working hard on new ideas for post war Ham Radio, reports a ring from Duds Hearne, whom most of you know as VK2DQ. Duds was just on his way south after just returning from overseas. Now a Fl/lt 2DQ was last heard of in this column as in an RAF Hospital recovering from a "sprang" in the leg. He visited Clarry G6CL while over the other side, but apart from a rumour he saw service in Italy we know nothing else of his doings....how about a bit of news, Duds, om....2YC.

Going overseas for a paragraph...Don reports a letter from G8LP Jeff Handley of 28mc fame and one of Don's oldest associates in Ham Radio. Jeff reports Cyril Price G6PC whom many of you remember from pre-war WIA divisional meetings. Cyril came through OK, and ended up as inspector in an aircraft factory. The G's are very interested now that the war is over to hear news of LA6N who was dropped over Norway with a Radio Xmitter, one foggy day, and they are also very keen to hear what happens to LA1G who was among the most well-known of the Norweigan Quislings.

Lieut Norm Hannaford landed with the assault troops in N.W Borneo. He mentions the capture of a IKW Jap Station and says that the idea of Jap equipment being of poor workmanship and design

is all out of date. Anyway, I guess Norm very ruefully thought of the jobs still ahead, the distance between Borneo and Sydney, and his post war Ham Stn. before pushing past that collection of gear. Never mind, Norm, the new power limit is 50 watts, not 5KW. Hi!

W/O Ratcliff VK3RA of the RAAF reports his return to Brisbane after service in the Philippines. He has nothing to say of his service duties. He says that the yls and the Wx were very fb and if there had been no war things would have been lovely...but th re was a war.

VK2AMQ Sig Haining writes from "somewhere in the Pacific on a place not very big and rather warm" that he is playing housemaid to a couple of rigs which thank heavens do not give too much trouble as many of them do in this part of the world. He mentions that he had several rag chews with Lieut. Geo. Lance VK3DS who wishes to be remembered to all the gang down South. About twelve months ago 2AMQ had a visit to 1650 jolts when he overbalanced and put his hand on the tank coil of one of the rigs...only another op. saw the accident and switched off the power...well, these notes would have been written on another type of paper altogether, Hi!

We hear that VK2AGJ is now in England waiting to be returned to Australia after his enforced sojurn in Stalag III. Does anyone know if Snow Campbell has returned yet.

Hams seem to be always amongst the list of decorations. The latest brought to your notice is F/Lt. J. B. Bell VK3SN, who has been Mentioned in Despatches. The citation reads "For marked devotion to duty. He served in New Guinea from 11-6-43 to 25-4-44 and was responsible for signals installations in forward areas in which enemy patrols were still operating." Before enlisting VK3SN resided in Shepparton.

Jim Marsland 3NY forwards a letter from Capt. J. H. Winton, VK3XR, which reads "As you can see by the address I'm languishing in hospital--the Nip eventually caught up with me and plugged me in the leg shattering the thigh bone. This means a 'Homer' for me so you can expect to see me in a few months time hobbling into a meeting or two. Hope you are doing well these days. I was very wound up about one of the articles on Post War Radio I read in AR just before I was wounded, and was just about to take up pen and launch a fearsome attack---but now I've lost the article. It concerned proposals for policing amateur transmissions and other such ideas which smacked too much to me of Gestapo methods. Give my kind regards to all--should be at Heidelberg in a couple of months."

And now it only remains to tell you that the address to which to send your notes is...J. B. Corbin, VK2YC, 78 Maloney Street, Eastlakes, or better still if you happen to be in Sydney the 'phone number is MU1092.

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## NEW SOUTH WALES DIVISION

The Monthly general meeting of the Division was held at Science House on Thursday 19th July at 8 p.m. and the usual large representative number of Members were in attendance.

Members were informed that Mr. Bill Dukes VK2WD had been elected to the vacancy on Council caused by Mr. F. P. Dickson's resignation. 2WD has been appointed Membership Secretary and all queries regarding Membership should be addressed to him either at Box 1734 G.P.O. or Francis Street, Strathfield. From his call you will see that Mr. Dukes is no newcomer to Experimental Radio and he brings to the Council a wealth of experience in all branches of the art and will be a decided asset in Divisional affairs.

Another election to Council was that of Mr. Ray Patterson VK2AJW. Under the Articles, Council has the right to fill certain ex-officio positions and as one of these positions still remained vacant it was decided to fill it at the same time as 2WD was elected. 2AJW has been Section Leader at VL2JE for some considerable time and will be in an excellent position to express the views of Members living on the Upper North Shore Line.

Here is a list of those Members present:- 2WD, 2DI, 2NO, 2RA, 2AFQ, 2AGA, 2NP, 2EE, 2JN, 2AKR, 2TF, 2NG, 2DR, 2AGO, 2AKW, 2AJW, 2AFB, 2ABN, 2YC, 2TI, 2LO, 2ADQ, 2JF Messrs. Borlan, O'Neill, Hawkins and Murphy.

Whilst on subject of "among those present," here is a suggestion. In pre-war days, most chaps had their call engraved on a small badge that could be worn in the lapel of the coat. You must still have them at home somewhere. Why not dig them out and wear them to meetings and let the other fellow see who he's sitting next to.

Members were informed that Mr. Maurice Lusby had been in Melbourne recently and had conferred with F.H.Q. on post war matters. We would like to thank the members of F.H.Q. for the manner 2WN "was looked after." These exchange of visits do a wonderful amount of good, and it is hoped that more will take place in future.

Quite a considerable amount of discussion centred around a recent sale of Radio Equipment held by the Disposals Committee. It would appear that a great quantity of equipment that could be used for transmitting purposes is being sold to all and sundry without the necessity of obtaining a permit. Members were of the opinion that such being the case the P.M.G. should return the sealed containers belonging to Experimenters.

A very interesting visitor at the July Meeting was Petty Officer Ed Bush of the Fleet Air Arm. Ed is not a ham, or perhaps it would be correct to say "not yet." He is typical of many thousands of keen &

onthusiastic young men throughout the Empire who have gained their first insight to radio through the Services. Our only regret is that Ed couldn't talk. What he did tell us only whetted our appetites for more!

Mr. Elgar Toharne VK2AFQ was the Lecturer at this Meeting and he chose for his subject "Vacuum Tubes in Industry." This subject proved a very interesting and entertaining one and at its conclusion he was accorded a very hearty vote of thanks.

The August General Meeting of the Division will be held at Science House Gloucester Street Sydney on Thursday, 16th August, and Mr. Wester-Stubbs will speak on "Home Made Talkies", and this talk will be accompanied by a screening of home made films. So, come early.

## EMERGENCY COMMUNICATION NETWORK

Monthly exercises are still being held, but now take place on the second Friday of the month instead of the first. This change was brought about by the decision to hold two Council Meetings monthly.

Operators will regret to learn that State Operational Controller Colonel F. Lorenzo D.S.O. is confined to hospital suffering from thrombosis. Everyone will join in wishing "Lorry" a speedy recovery.

## BUSHFIRES RADIO NETWORK

Following on a recent re-organisation of Council, Mr. Elgar Treharne VK2AFQ has been appointed Director of Country Radio Schemes (Emergency). This has been a decided gain to the Network as 2AFQ has been interested in all types of portable and mobile equipment for many years.

Bushfires Stations can still be heard practising during any night of the week particularly Friday night.

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ARE YOU INTERESTED - Allen Fairhall, VK2KB passes on this information. In the course of his work he has been associated with the Netherlands East Indies Signals people, and has been requested by them to supply a possible source of personnel to instal and operate small broadcast transmitters in the N.E.I. as the Government of that country will shortly be faced with the necessity of rehabilitating communications in their restored possessions.

He is advised that the PMG Broadcast Operators Certificate will not be necessary. Ham qualifications and experience should be

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## VICTORIAN DIVISION

Members of the Victorian Division are reminded that on Tuesday night, August 7th is the night of the Annual General Meeting of the Division. At this meeting the annual election of Officers takes place, and it is to your own interest that you attend and in doing so you will be taking an active interest in Divisional affairs. DON'T FORGET TUESDAY? AUGUST 7th AT 8 P.M.

The Laboratory Committee have been busy in co-operation with the Victorian Ski Club, and report that Mr. Don Bennett of that club has been away at Mt. Hotham and Mt. Bogong for the past few weeks carrying out further tests with their emergency sets, so that we have been unable to confer further about their problems. It would appear however, that the aerial system is the most difficult problem to overcome. Reports on reception of their recent tests have come from Balcombe and other parts where 3DB's harmonic does not interfere with reception. Even so, conditions are not entirely satisfactory, but they have been able to identify various stations and hear most of what has been said.

Another problem is that of a suitable power supply. A pedal generator has been considered and would be very suitable were it not probable that the set may have to be worked by someone in an exhausted condition or with a broken limb, and so quite unable to generate enough power to operate the set. Another possible solution is an accumulator kept fully charged by means of a wind driven generator. Objections to this scheme are:- the low temperature at which the battery would normally operate reduces its efficiency considerably, the charger would become useless due to icing for periods of about a week and may also be stopped for various periods due to lack of wind. Another consideration is that the absence of a high charging rate may be detrimental to the battery unless it were designed for those particular conditions. Dry batteries are the only other suitable source of supply available, but because of their limited capacity severely restrict the power of the transmitter. Thus it is that an effective radiating system is needed to ensure that the low power signals reach the farthest point at which reception is desired---a distance of 80 miles.

The Victorian Ski Club desire to express their gratitude to those who were able to listen to the tests and forward reports on the reception of the various stations.

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(ARE YOU INTERESTED)

sufficient. Selected operators would be signed on for at least a year at a salary 30% higher than Australian pay for comparable work plus travelling expenses.

Those interested should contact:- Major Jannson; N.E.I. Signals Section; 21 Macquarie Place: Sydney...Phone BW3064.